

2007 Trauma Report



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Introduction

The Cincinnati Children's Hospital Medical Center Trauma Service is one of the largest children's hospital based trauma services and arguably the most progressive in improving the continuum of care for injured children. The mortality rates for children sustaining severe closed head injuries are significantly better than the national average. Cincinnati Children's Trauma Services was one of the first to develop and consistently implement and improve the efficacy of evidence based guidelines for the management of solid organ injuries and also develop a practice pattern employing nurse practitioners in an expanded role. Both of these initiatives have resulted in quantified improvement in patient clinical outcomes, shorter lengths of hospital stay, lower mortality rates, and a decrease in health care costs.

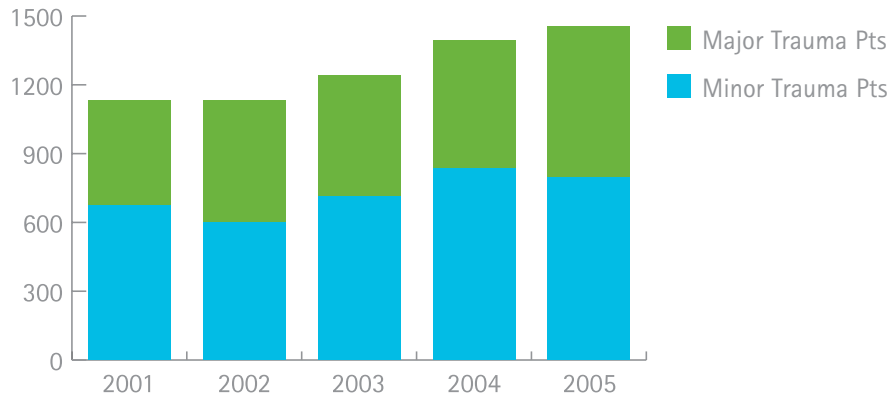
Leadership and the members of the trauma service have set out to address the daunting question of how to improve trauma care environments where traditionally services work as multi faceted and self contained silos. Cincinnati Children's Hospital Trauma Service is moving toward an integrated practice model that incorporates specialty treatment across the continuum for traumatically injured children. Trauma care over the full care cycle is tightly coordinated with the capable assistance of our pediatric trauma nurse practitioners. Conceptually trauma care at Cincinnati Children's Hospital is constructed not for individual procedural intervention but for the particular pattern of injuries the child has sustained.

Trauma Services regards injury as best treated by an integrated care delivery process. By clearly defining the care cycle it allows value enhancing monitoring and prevention throughout the hospital course and focused long term disease management such as school reentry.

This institution's experience with traumatic injuries is outlined in this report. The report recognizes that traumatic injury remains the most common cause of preventable death and disability among children and adolescents. But in acknowledging this fact, Trauma Service is intent on redefining pediatric trauma care by creating value-based cycles of care.

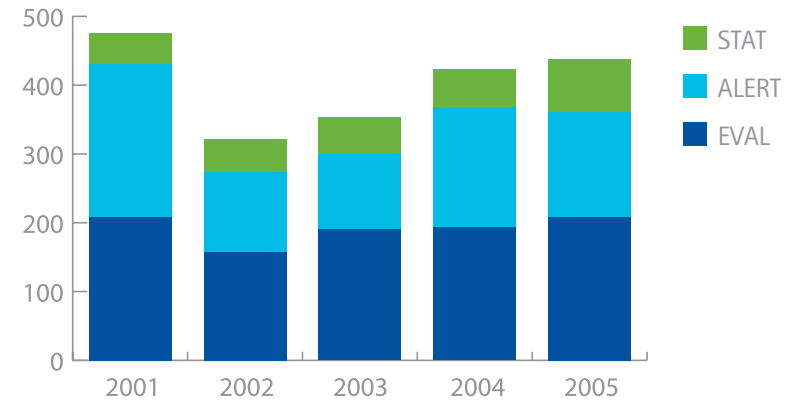


Number of Trauma Patients Per Year



- Cincinnati Children's trauma admissions have increased nearly 30% since 2001

Resuscitation Level by Year



- There are three levels of trauma resuscitation team activation: Trauma Stat (most severe injuries), Trauma Evaluations (mild injuries with potential for deterioration),
- The number of seriously injured children requiring the activation of a Trauma Stat has increased from 10% to 17% of all resuscitations over the last 5 years.



Patient Definition:

All children admitted for treatment of injuries (including 23 hour observation), trauma resuscitations, and injured children who die in the Emergency Department. For additional data, contact 513-636-3617.

Trauma Education

Education of those providing care to the injured child is a primary focus of Cincinnati Children's Trauma Service. The education methods go beyond traditional classroom teaching and include the use of high fidelity life-like patient simulators. Developed in conjunction with Emergency Medicine, simulator training not only helps educate participants in the care of the injured child, it also cultivates leadership and communication skills while allowing team members to practice providing care for the child.

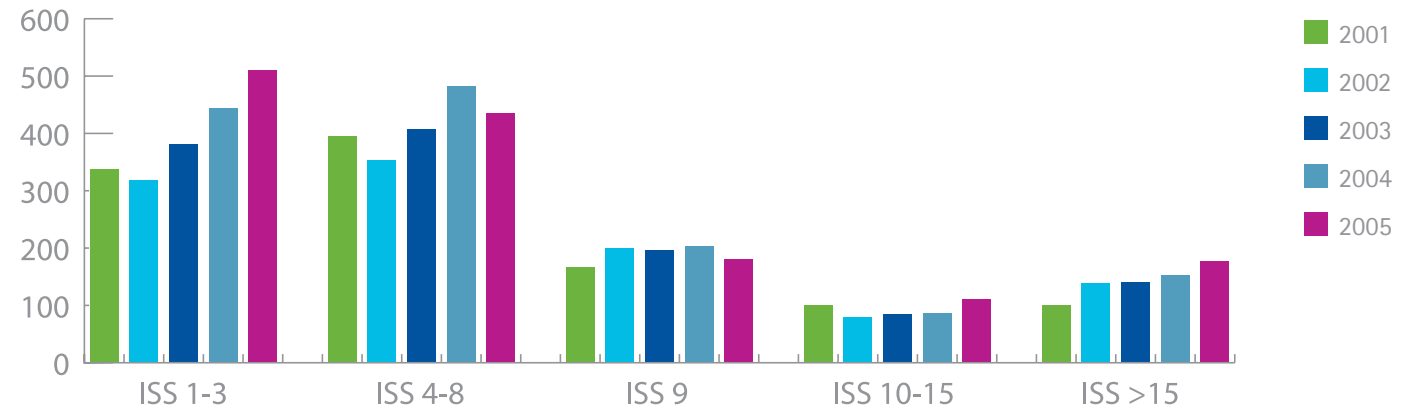
The simulator, which has palpable pulses, audible breath sounds and heart tones generated via a computer, provides various practice scenarios for the multidisciplinary. This team is made up of surgeons, emergency medicine and intensive care physicians, residents, nurses, paramedics and respiratory therapy staff. Recently, the addition of Trauma Core Nurses, a group of experienced nurses with advanced trauma training, provides around the clock advanced nursing coverage during the initial resuscitation of the injured child.

To explore various learning opportunities, contact [513-636-3617](tel:513-636-3617).





Injury Severity Score



- Over the last 5 years an average of 11% of admitted trauma patients were seriously injured, the number of seriously injured children has continued to increase and nearly doubled since 2001.

The Injury Severity Score (ISS) is a summary measure of the severity of injuries a child has sustained. The ISS score ranges from 1-75. Injury scores are categorized as: 1-9 (minor), 10-14 (moderate), >15 (severe).





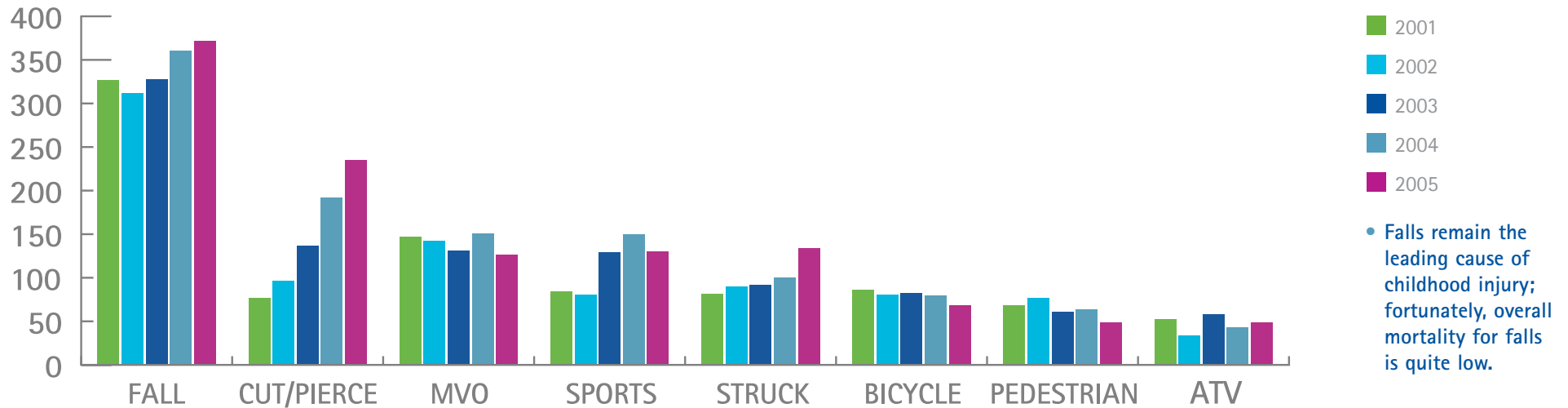
Clinical Care

In addition to a highly trained group of Pediatric Surgeons, injured children are cared for by a unique group of Trauma Core Nurses and two full-time Trauma Nurse Practitioners. The Trauma Service nurse practitioners are a vital component for managing the seriously injured child. Close collaboration among the pediatric trauma surgeons and the multiple consulting services, provides consistent expert treatment to manage complex pediatric injuries.

Trauma Nurse Practitioners not only provide a high level of quality care, but have also been highly rated by patients, parents and other nurses for consistently providing family centered care, education, discharge planning, as well as flexible scheduling options for Trauma Clinic follow up. Beyond their clinical responsibilities, the Trauma Nurse Practitioners also assist in monitoring performance improvement initiatives, developing evidenced-based care guidelines and conducting clinical research all to improve the outcome for the injured child.

To contact the Trauma Nurse Practitioner or to arrange a Trauma Clinic appointment, call 513-636-3617.

Leading Cause of Injury



The case for an injury prevention program for children is compelling. Injury prevention programs have resulted in unparalleled changes in basic attitudes and behaviors concerning injuries and they have shown that an informed and aroused public can make a lasting difference. They have shown that there exists today, the knowledge and other resources that can be mobilized and applied in a manner that can save children's lives.

Victor Garcia MD,
Director Trauma Services



Child Passenger Safety Program

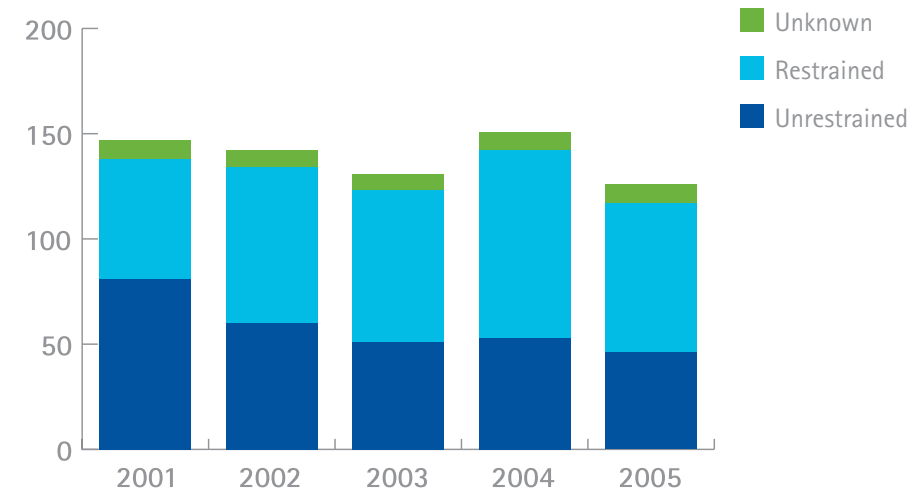
In an effort to reduce childhood mortality and morbidity, Cincinnati Children's Trauma Service offers a comprehensive Child Passenger Safety Program that addresses both nonuse and misuse of child restraints. In existence since 1993, a multi-faceted approach ensures that all children ages 0-16 are properly restrained in the correct restraint system for their age and size.

The Child Passenger Safety Program continues to grow, thanks to generous support from numerous community partners. One feature of this program, recognized for excellence by the National Highway Traffic Safety Administration, is the regional Child Passenger Fitting Stations. During these safety checks, drivers are given occupant safety materials, and child safety seats are inspected for manufacturer recalls. In addition, drivers are educated about proper restraints for their child's height and weight, correct harness positions and appropriate installation.

For family convenience, a Child Passenger Fitting Station is now located within 50 fire and police departments within eight counties in the Greater Cincinnati area. Over 520 certified car seat technicians, trained by Injury Prevention experts from Cincinnati Children's, provide car seat installation checks.

In addition to the general program, Cincinnati Children's has an active and unique passenger safety initiative for children with special health care transportation needs. This specialized program provides car beds or other unique restraints for injured children or low birth weight babies that cannot fit into traditional car seats. To date, over 1000 children have benefited from these unique car seat restraints, making travel safe for these children and families.

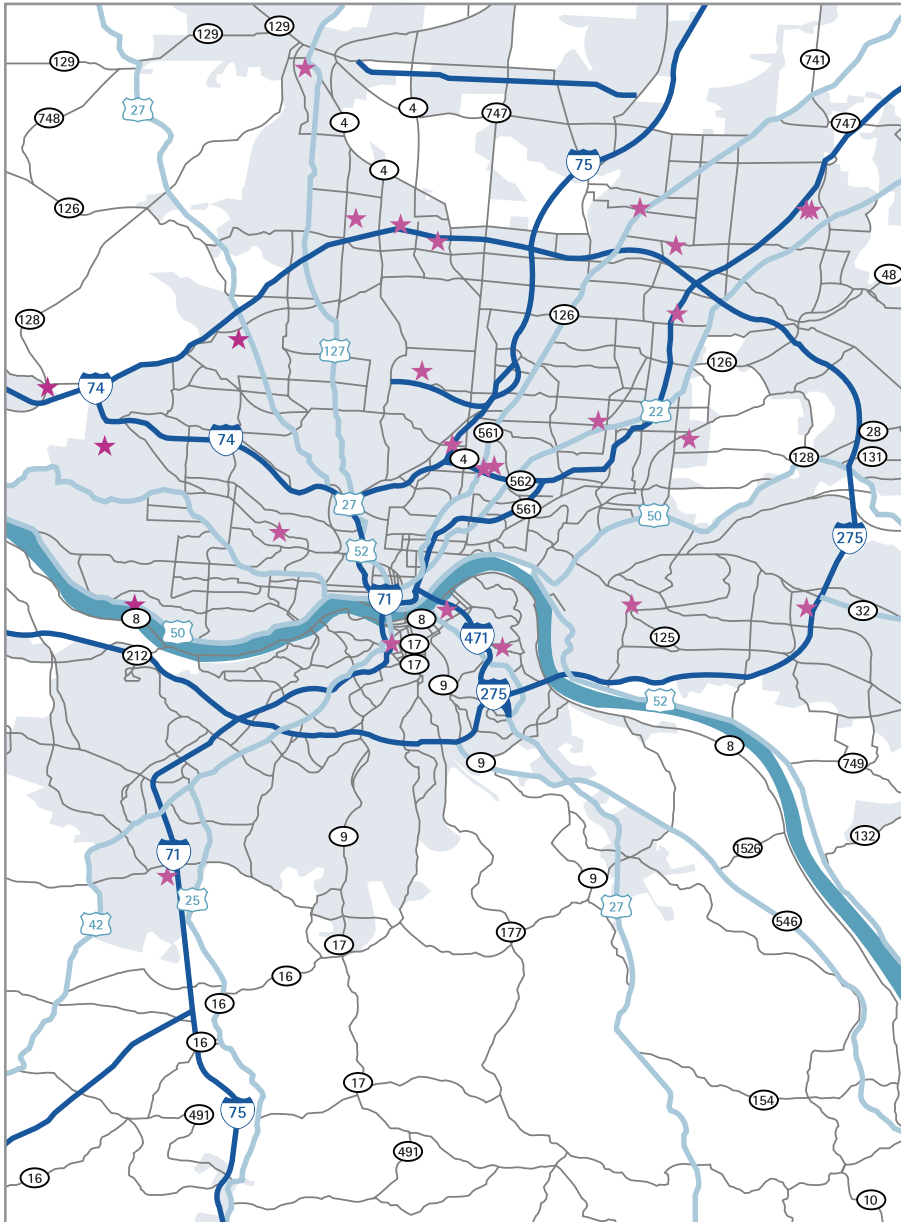
Restraint Usage for MVO's



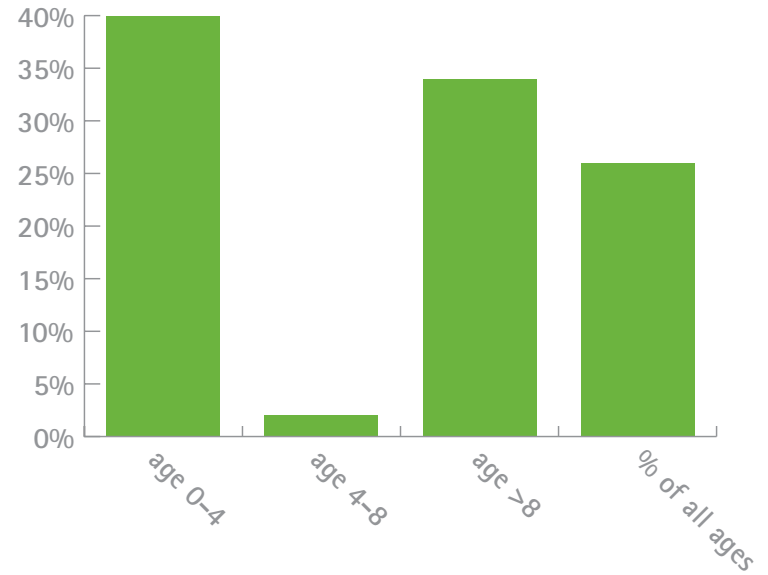
- Of the 697 children involved in car crashes over the past five years only 52% were restrained.
- Only 25% of these children were in the proper type of restraint for their age.

For child passenger safety questions or to schedule a car seat check, contact 513-636-7865.

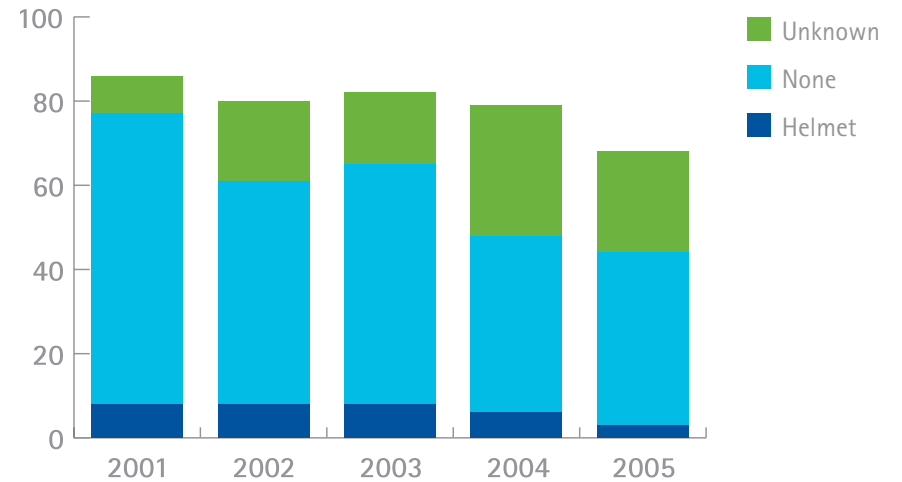
Fitting Station Locations (Regional)



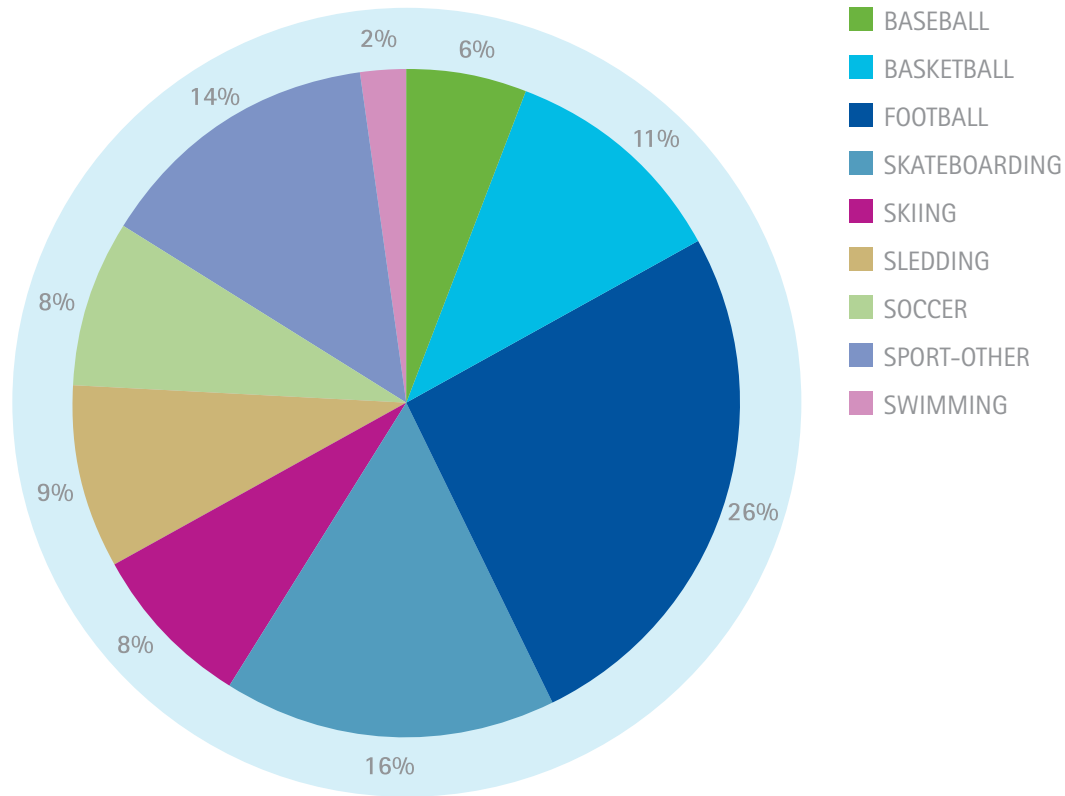
Percentage of Properly Restrained Children in MVO's



Helmet Usage



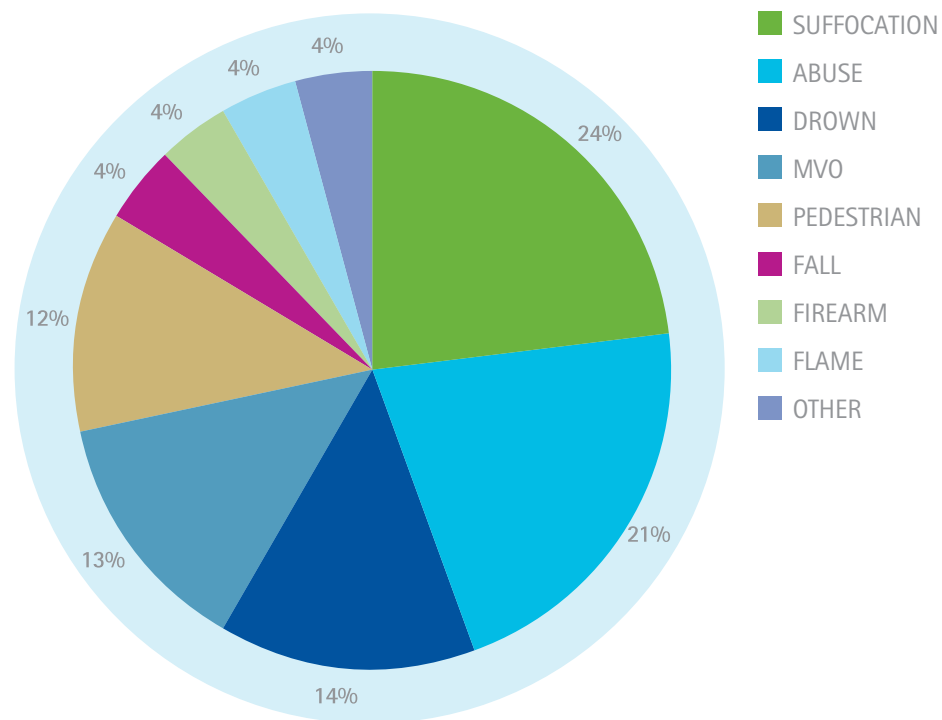
Sport Types



- Although making up only 10% of all injuries requiring hospital admission, the number of sports related injuries continue to increase.
- The most common sports leading to serious injuries are football and skateboarding.

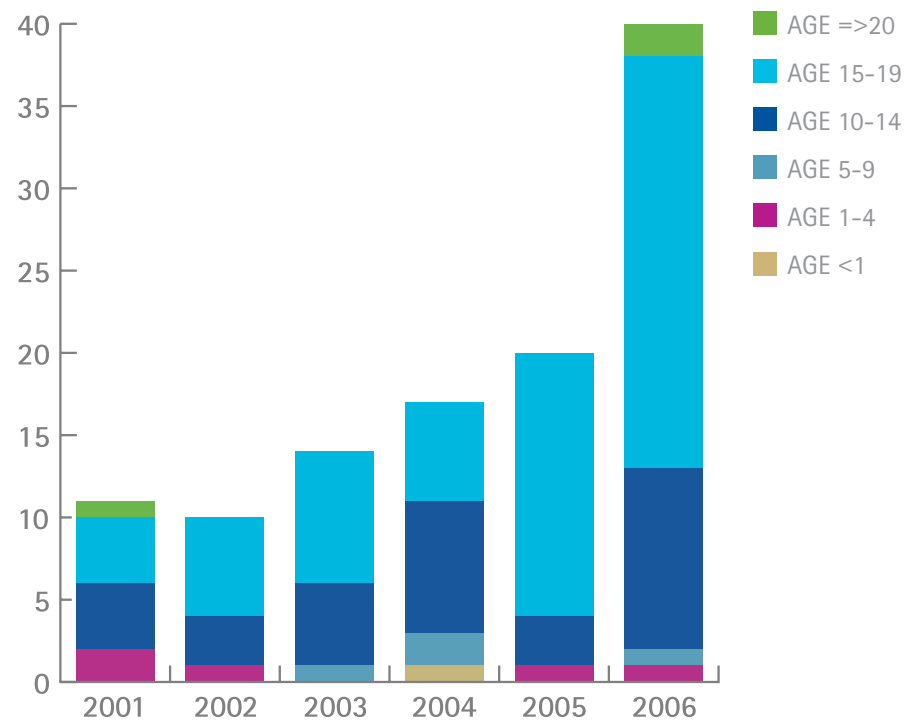


Deaths: Five Year Analysis



- The overall mortality rate remains low at 1.5% of all injury related admissions.
- The majority of the deaths (37%) occur in the 1-4 year old age group.
- Nearly half of all deaths are a consequence of suffocation or child abuse.
- Unfortunately, despite representing only 22% of the population, African American children account for 46% of our injury related mortality.

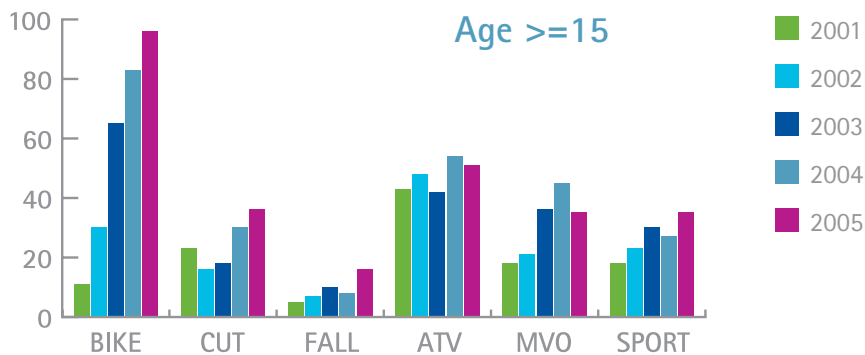
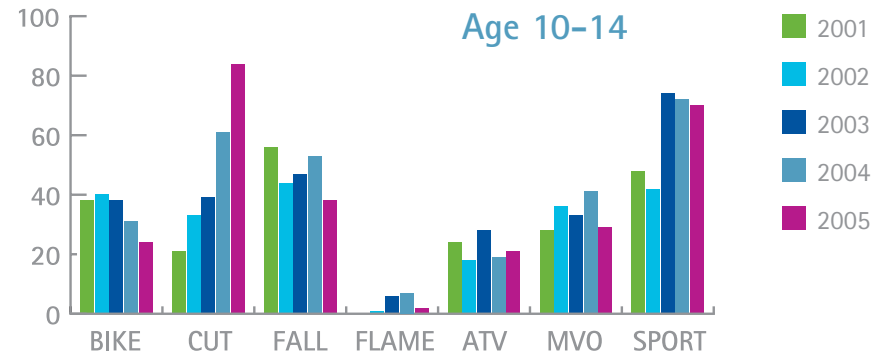
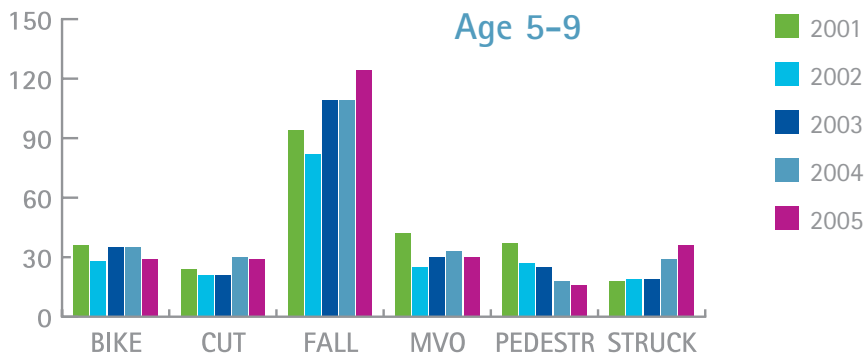
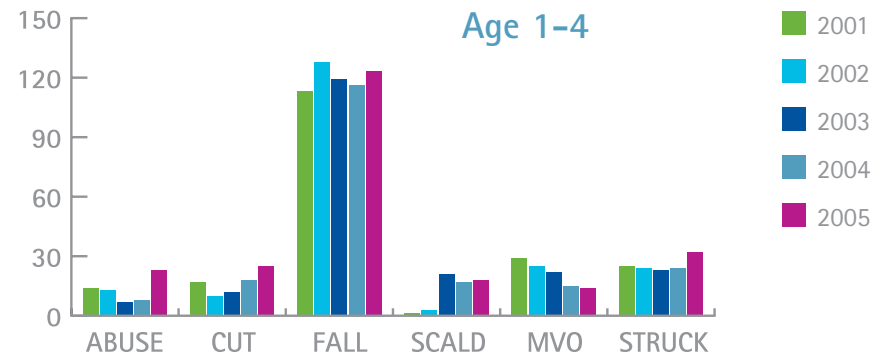
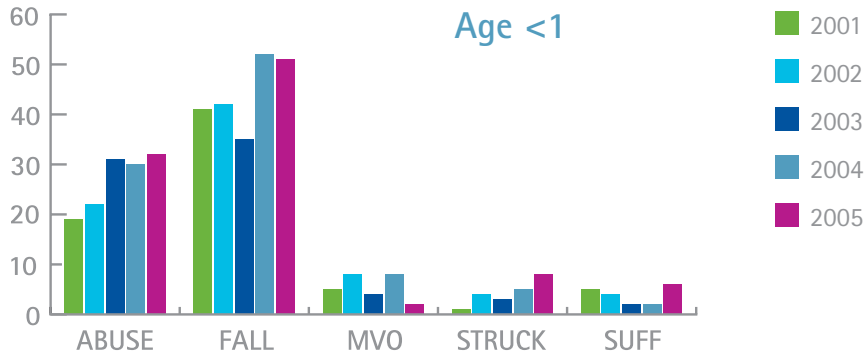
Firearm Injuries



- There has been a nearly 100% increase in the number of children admitted as a result of a gunshot wound in the last 5 years.
- The largest increase has been among the adolescent age group (>15) where there has been a 300% increase.



Injuries Per Age Group



- Age <1** Although falls remain the leading mechanism of injury among infants, child abuse related admissions have increased over 50% in the last 5 years. Abuse and suffocation related injuries have the highest mortality.
- Age 1-4** Falls remain the leading injury mechanism for this group, the number of children injured in motor vehicle collisions begins to increase.
- Age 5-9** Bike, pedestrian and sport related injuries begin to play a more prominent role.
- Age 10-14** ATV becomes a major mechanism of injury for the 10-14 year old children. Sport related injuries become the leading mechanism among 10-14 year old children. Motor vehicle related injuries remain the leading cause for serious injury and mortality.



Hispanic Youth Injury Prevention

This innovative Hispanic Youth Injury Prevention program was created to address the increased prevalence of injuries among the growing Hispanic population. It was developed in cooperation with the local Hispanic faith community and with support from Toyota Motors.

As limited English proficiency exists in some Hispanic families, this bilingual safety education program is committed to imparting culturally appropriate information and educational resources in both English and Spanish languages. This initiative, divided into two components, centers on a faith-based multi-generational vehicle passenger safety program and a home safety program designed to prevent unintentional injury due to fires, falls, drownings/near drownings and bike riding. This program has been enthusiastically welcomed into the Hispanic community and has demonstrated remarkable improvements in restraint use by both Hispanic children and adults.

For additional injury prevention information, contact 513-636-7865.

Research Update

To succeed with the overall mission of eliminating injury, research on treatment and interventions, along with injury prevention is a critical piece. Recent Trauma Service research efforts include careful evaluation of the epidemiology of injuries and the impact of nurse practitioners on quality of care and patient/parent satisfaction. It also consists of detailed evaluation of patient outcome and impact of treatment guidelines, measurement of the impact of innovative trauma education initiatives, and continued evaluation of our multiple prevention initiatives.

Recent research highlights include:

- Identifying and understanding health disparities affecting minorities, such as differences in child restraint use, victims of violence, and outcomes following injury.
- Identification of an increasing problem related to children and all terrain vehicles (ATVs) and the subsequent increasing injuries documented at Cincinnati Children's.
- Recognized shorter length of stay, improved patient and family satisfaction levels, and improved satisfaction of nursing staff caring for trauma patients with utilization of trauma nurse practitioners.
- Positive evaluation of the faith-based injury prevention initiatives at Cincinnati Children's. Careful evaluation of the African-American and Hispanic population demonstrates that injury prevention initiatives, such as proper usage of child passenger restraints, can dramatically be improved when working in partnership with the faith-based community.
- Partnership with community pediatricians to raise awareness of the need for children 4-8 years of age to be restrained in booster seats. Recent data demonstrates that a comprehensive program can significantly increase the time spent counseling families regarding passenger safety.





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